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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/464,364	12/15/1999	GEORGE SANCHEZ	09623-022900	7441

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EXAMINER	
HERNANDEZ, NELSON D	
ART UNIT	**PAPER NUMBER**
2612	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/464,364	SANCHEZ ET AL.	
	Examiner	Art Unit	
	Nelson D. Hernandez	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12 and 15* is/are allowed.

6)☒ Claim(s) *1-3,6-11,16-30 and 34* is/are rejected.

7)☒ Claim(s) *4,5,13,14,31-33,35 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/7/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Examiner acknowledges the amendments made on the claims. Claims 1-7, 12, 15-17, 28 and 34 have been amended. Examiner also acknowledges the amendments made on claim 1 to overcome the rejections made under 35 U.S.C. § 101, amendments to claim 1 overcomes the rejection.

Response to Arguments

2. Applicant's arguments with respect to claims 1-11, 16-30 and 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 6-11, 16-30 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tan, US Patent 6,625,318 B1 in view of Peairs, US Patent 5,694,228.

Regarding claim 1, Tan discloses a method of detecting and correcting defective pixel data in raw data taken from an image sensor of a portable image capture device (Fig. 7: 730) used to obtain a digitized image, wherein said raw data includes normal pixel data and defective pixel data, said method comprising the steps of: receiving at an intelligent host a raw data signal for each pixel in said image (See col. 8,

line 44 – col. 9, line 19); computing for each pixel received from said image sensor a brightness value (Col. 3, lines 9 – col. 4, line 48; col. 6, lines 31-65); computing for each pixel received from said image sensor a local brightness value (Col. 3, line 30 – col. 4, line 2); computing for each pixel received from said image sensor a local brightness deviation of said brightness value from said local brightness value (Col. 3, line 30 – col. 4, line 2); setting a deviation threshold (Col. 6, lines 29-65); comparing for each pixel received from said image sensor, its local brightness deviation to said deviation threshold and designating pixels having local brightness deviations greater than said deviation threshold as defective pixels (Col. 6, line 31 – col. 7, line 15); recording the location of said defective pixels in a statistical database (Col. 3, line 30 – col. 4, line; col. 8, line 44 – col. 9, line 10); and correcting the brightness value of said defective pixels (Col. 9, lines 45-60), wherein the computing steps, comparing step, and correcting step are performed by the intelligent host (Col. 3, line 3 – col. 7, line 15; col. 8, line 44 – col. 9, line 60) but does not explicitly disclose recording the frequency of occurrence of said defective pixels in said statistical database, and that the step of correcting the correcting step is warranted by trends from said statistical database.

However, Peairs teaches a method of detecting and correcting defective pixels wherein the location of the defective pixels are recorded in a statistical database and recording the frequency of occurrence of said defective pixel in said statistical database (See col. 4, line 21 – col. 5, line 14). Peairs also teaches correcting the brightness value of said defective pixels, provided said correcting is warranted by trends from said statistical database (Col. 3, line 52 – col. 4, line 2).

Therefore, taking the combined teaching of Tan in view of Peairs as a whole, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Tan by recording the location of the defective pixels in a statistical database and recording the frequency of occurrence of said defective pixel in said statistical database and correcting the brightness value of said defective pixels, provided said correcting is warranted by trends from said statistical database. The motivation to do so would help to correct the defective pixels based on the location of the defective pixels as suggested by Peairs (Col. 7, lines 25-47) helping to correct the defective pixels faster and more accurately.

Regarding claim 6, Tan discloses the same as in claim 1. Therefore, grounds for rejecting claim 1, apply here.

Regarding claim 7, Tan discloses the same as in claim 1. Therefore, grounds for rejecting claim 1, apply here.

Regarding claim 8, Tan discloses that the image sensor is one of (a) a charge-coupled device (CCD) image sensor array and (b) a complimentary metal oxide semiconductor (CMOS) image sensor array (Col. 1, lines 13-34).

Regarding claim 9, Tan discloses that the raw data is the unprocessed brightness value data, which is output by said image sensor, which has not gone through either lossy compression or color processing (Col. 3, line 3 – col. 7, line 15; col. 8, line 44 – col. 9, line 60).

Regarding claim 10, Tan discloses detecting and correcting on a portion of said raw data obtained from said image sensor array corresponding to a portion of a frame of a video image (Col. 8, line 44 – col. 9, line 10).

Regarding claim 11, detecting and correcting on a portion of said raw data obtained from said image sensor array corresponding to a portion of a still digital image (Col. 8, line 44 – col. 9, line 10).

Regarding claim 16, the combined teaching of Tan in view of Peairs as applied to claim 1 teaches the system and method as in claim 1. Therefore, grounds for rejecting claim 1 apply here.

Regarding claim 17, the combined teaching of Tan in view of Peairs teaches that said portable device transmits said raw data signals to said intelligent host via a bus, wherein said bus connects said image sensor to intelligent host (See Tan, col. 9, lines 20-60), wherein said statistical database, by storing the location and frequency of defective pixels, develops over time trends which confirm which of said defective pixels warrant pixel corrections wherein said trends initially warrant pixel correction as a default and over time warrant pixel correction only if a particular defective pixel has a given occurrence frequency (See Peairs, Col. 3, line 33 – col. 5, line 29; col. 6, line 54 – col. 7, line 46).

Regarding claim 18, the combined teaching of Tan in view of Peairs as applied to claim 16 teaches the intelligent host as a programmed computer (See Tan, col. 9, lines 20-60 Peairs col. 10, lines 16-24).

Regarding claim 19, the combined teaching of Tan in view of Peairs teaches the same as in claim 16. Grounds for rejecting claim 16 apply here.

Regarding claim 20, the combined teaching of Tan in view of Peairs teaches the same as in claims 1 and 16. Grounds for rejecting claims 1 and 16 apply here.

Regarding claim 21, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches that the local brightness deviation is the absolute value of the difference between said pixel's brightness value and said pixel's local brightness value (See Tan, col. 3, line 3 – col. 7, line 15; col. 8, line 44 – col. 9, line 60).

Regarding claim 22, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches the system for performing the same method step as in claim 4. Grounds for rejecting claim 4 apply here.

Regarding claim 23, the combined teaching of Tan in view of Peairs teaches the system for performing the same method step as in claim 8. Grounds for rejecting claim 8 apply here.

Regarding claim 24, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches the system for performing the same method step as in claim 9. Grounds for rejecting claim 9 apply here.

Regarding claim 25, grounds for rejecting claim 17 apply here.

Regarding claim 26, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches the system for performing the same method step as in claim 5. Grounds for rejecting claim 5 apply here.

Regarding claim 27, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches the system for performing the same method step as in claim 6. Grounds for rejecting claim 6 apply here.

Regarding claim 28, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches that the portable device is a digital still camera (Col. 8, line 44 – col. 9, line 10).

Regarding claim 29, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches the system for performing the same method step as in claim 10. Grounds for rejecting claim 10 apply here.

Regarding claim 30, the combined teaching of Tan in view of Peairs as applied to claims 1 and 16 teaches the system for performing the same method step as in claim 11. Grounds for rejecting claim 11 apply here.

Regarding claim 34, the combined teaching of Tan in view of Peairs teaches the same as in claim 16. Grounds for rejecting claim 16 apply here.

5. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tan, US Patent 6,625,318 B1 in view of Peairs, US Patent 5,694,228 and further in view of Katoh, US Patent 5,796,430.

Regarding claim 2, the combined teaching of Tan in view of Peairs teaches that the local brightness value is the arithmetic average of the brightness values of all pixels immediately neighboring and surrounding said pixels (See Tan, col. 3, line 3 – col. 7, line 15; col. 8, line 44 – col. 9, line 60), but does not teach the detecting includes video

subsampling, wherein using video subsampling said detecting is carried out on video data frames at a rate of one of every n video frames.

However, Katoh teaches a video camera with a function of correcting defective pixels wherein the detected defective pixels are corrected and the location of said defective pixels is recorded in a memory (Fig. 1: 110), wherein the detection of defective pixels is performed on video data frames at a predetermined rate (Col. 3, lines 46-57; col. 4, lines 14-67; col. 7, lines 37-65).

Therefore taking the combined teaching of Tan in view of Peairs and further in view of Katoh as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to detect and store the defective pixels on video data frames at a predetermined rate. The motivation to do so would help to update the location of the defective pixels in the memory so as to obtain images of good quality every time the imaging operation is performed.

Regarding claim 3, the combined teaching of Tan in view of Peairs teaches that the local brightness deviation is the absolute value of the difference between said pixel's brightness value and said pixel's local brightness value (See Tan, col. 3, line 3 – col. 7, line 15; col. 8, line 44 – col. 9, line 60) but does not teach that detecting includes video subsampling, wherein using video subsampling said detecting is carried out on video data frames at a rate of one of every n video frames, and wherein said correcting is continuous on every video data frame.

However, Katoh teaches a video camera with a function of correcting defective pixels wherein the detected defective pixels are corrected and the location of said

defective pixels is recorded in a memory (Fig. 1: 110), wherein the detection of defective pixels is performed on video data frames at a predetermined rate (Col. 3, lines 46-57; col. 4, lines 14-67; col. 7, lines 37-65).

Therefore taking the combined teaching of Tan in view of Peairs and further in view of Katoh as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to detect and store the defective pixels on video data frames at a predetermined rate. The motivation to do so would help to update the location of the defective pixels in the memory so as to obtain images of good quality every time the imaging operation is performed.

Allowable Subject Matter

6. **Claims 12 and 15** are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 12 and 15, prior art fails to teach or reasonably suggest that the statistical database warrants pixel correction is a particular defective pixel has an occurrence frequency of at least two out of four queries; and wherein said detecting is carried out on video data at a rate of one of (a) between one of every 128 video frames and 1 of every 32 video frames, and (b) one of every n times X frames, where n is an integer and X in not equal to either 50 or 60, and where said correcting is carried out continuously on every video data frame.

Kohashi, US Patent 6,642,960 B1 discloses a method of detecting and correcting defective pixels in raw data taken from an image sensor (Fig. 2: 4) (Col. 11, line 66 –

col. 12, line 13) used to obtain a digitized image, wherein said raw data includes normal pixels and defective pixels, said method comprising the steps of: receiving a raw data signal for each pixel in said image (Col. 12, lines 14-39); computing for each pixel received from said image sensor a brightness value (Col. 13, lines 4-39; col. 14, lines 12-38, col. 18, line 47 – col. 19, line 4); computing for each pixel received from said image sensor a local brightness value (Col. 14, lines 12-38); computing for each pixel received from said image sensor a local brightness deviation of said brightness value from said local brightness value (Col. 14, lines 12-38); setting a deviation threshold (Col. 14, lines 12-38); comparing for each pixel received from said image sensor, its local brightness deviation to said deviation threshold and designating pixels having local brightness deviations greater than said deviation threshold as defective pixels (Col. 14, lines 12-38). Kohashi also discloses correcting the brightness value of said defective pixels (Col. 12, lines 14-39).

Tan, US Patent 6,625,318 B1 discloses a method of detecting and correcting defective pixel data in raw data taken from an image sensor of a portable image capture device (Fig. 7: 730) used to obtain a digitized image, wherein said raw data includes normal pixel data and defective pixel data, said method comprising the steps of: receiving at an intelligent host a raw data signal for each pixel in said image (See col. 8, line 44 – col. 9, line 19); computing for each pixel received from said image sensor a brightness value (Col. 3, lines 9 – col. 4, line 48; col. 6, lines 31-65); computing for each pixel received from said image sensor a local brightness value (Col. 3, line 30 – col. 4, line 2); computing for each pixel received from said image sensor a local brightness

deviation of said brightness value from said local brightness value (Col. 3, line 30 – col. 4, line 2); setting a deviation threshold (Col. 6, lines 29-65); comparing for each pixel received from said image sensor, its local brightness deviation to said deviation threshold and designating pixels having local brightness deviations greater than said deviation threshold as defective pixels (Col. 6, line 31 – col. 7, line 15); recording the location of said defective pixels in a statistical database (Col. 3, line 30 – col. 4, line; col. 8, line 44 – col. 9, line 10); and correcting the brightness value of said defective pixels (Col. 9, lines 45-60), wherein the computing steps, comparing step, and correcting step are performed by the intelligent host (Col. 3, line 3 – col. 7, line 15; col. 8, line 44 – col. 9, line 60).

Peairs, US Patent 5,694,228 teaches a method of detecting and correcting defective pixels wherein the location of the defective pixels are recorded in a statistical database and recording the frequency of occurrence of said defective pixel in said statistical database (See col. 4, line 21 – col. 5, line 14). Peairs also teaches correcting the brightness value of said defective pixels, provided said correcting is warranted by trends from said statistical database (Col. 3, line 52 – col. 4, line 2).

However, Kohashi, Tan and Peairs, either alone or in combination fails to teach or reasonably suggest that the statistical database warrants pixel correction is a particular defective pixel has an occurrence frequency of at least two out of four queries; and wherein said detecting is carried out on video data at a rate of one of (a) between one of every 128 video frames and 1 of every 32 video frames, and (b) one of every n

times X frames, where n is an integer and X in not equal to either 50 or 60, and where said correcting is carried out continuously on every video data frame.

Claims 4, 5, 13, 14, 31-33, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez
Examiner
Art Unit 2612

NDHH
June 11, 2005

AUNG MOE
PRIMARY EXAMINER